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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,261	03/31/2004	Bing Leung Cheung	778.056US1	7468

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EXAMINER	
WENDELL, ANDREW	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/815,261	CHEUNG ET AL.	
	Examiner	Art Unit	
	Andrew Wendell	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 6, 8, 13, 17, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dockemeyer, Jr. et al. (US Pat Appl# 2004/0214540) in view of Haub et al. (US Pat Appl# 2005/0026564).

Regarding claim 1, Dockemeyer, Jr. et al. radio receiver with optimized multiple variable gain circuits teaches sampling the receive band with the receiver filters 44 and 64 (Fig. 2) across substantially all of the receive band 104 and 106 (Fig. 4); measuring received power at each sample 108 (Fig. 4); and calibrating the receiver gains as a function of the minimum received power across the receive band 110 and 112 (Fig. 4). Dockemeyer, Jr. et al. fails to teach setting receiver filters to a narrow bandwidth.

Haub et al. current reduction by dynamic receiver adjustment in a communication device teaches setting receiver filters 320 and 323 (Fig. 3) to a narrow bandwidth (Section 0030 and 0047).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate setting receiver filters to a narrow bandwidth as taught by Haub et al. into Dockemeyer, Jr. et al. calibrating gain receiver in order to reduce interference (Section 0002 and 0003).

Regarding claim 2, it is obvious and known that in a CDMA radio that wherein the narrow bandwidth is approximately 100 KHz ("Narrowband" TRA, see attachment).

Regarding claim 3, the combination including Haub et al. teaches that is possible and obvious that wherein the number of samples per receiver filter can be set between approximately 5 and 10 across a receive band of approximately 25 MHz (Section 0030 and 0047).

Regarding claim 6, the combination including Haub et al. teaches wherein the receivers are CDMA channel receivers (Section 0002 and 0030).

Regarding claim 8, the combination including Dockemeyer, Jr. et al. teaches wherein there are three CDMA (multiple channels) receivers (Fig. 1).

Regarding claim 13, the combination including Dockemeyer, Jr. et al. teaches two additional radio modules (multiple channels), each corresponding to a different CDMA sector (multiple channels, Fig. 1).

Regarding claim 17, Dockemeyer, Jr. et al. teaches merging the receiver to significantly cover the bandwidth of a channel (Section 0023); and moving the merged receiver filters to selected channels to identify whether interference is narrowband or wideband 104 and 106 (Fig. 4); and increasing the receiver attenuation 40 and 60 (Fig. 2) to protect the receiver from operating in the non-linear region and prevent an ADC 48 and 68 [Fig. 2, also it can be read on in Fig. 1 there has to be some sort of D/A converter for it to go into the Digital Demodulator 20 (Fig. 1) and then the signal later on gets converted back to analog 26 (Fig. 1)] from saturation when a strong interfering

signal is present (Fig. 4). Dockemeyer, Jr. et al fail to teach setting a bandwidth for the filters.

Haub et al. teaches setting a bandwidth for multiple receiver filters 320 and 323 (Fig. 3) to a portion of a channel bandwidth that is a function of the number of such receiver filters (Section 0030 and 0047).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate setting a bandwidth for the filters as taught by Haub et al. into Dockemeyer, Jr. et al. calibrating gain receiver in order to reduce interference (Section 0002 and 0003).

Regarding claim 20, Dockemeyer, Jr. et al. teaches measuring received power through each filter at the selected channels (Section 0023).

Regarding claim 21, Dockemeyer, Jr. et al. teaches wherein the interference is identified as narrowband if the difference of the received power across all filters is substantially large at a selected channel (Sections 0015-0018 and 0023).

Regarding claim 22, Dockemeyer, Jr. et al. teaches wherein the interference is identified as wideband if the difference of received power across all filters is small at a selected channel (Sections 0015-0018 and 0023).

Regarding claim 23, Dockemeyer, Jr. et al. teaches means for merging the receiver to significantly cover the bandwidth of a channel (Section 0023); and moving the merged receiver filters to selected channels to identify whether interference is narrowband or wideband 104 and 106 (Fig. 4). Dockemeyer, Jr. et al fail to teach setting a bandwidth for the filters.

Haub et al. teaches means for setting a bandwidth for multiple receiver filters 320 and 323 (Fig. 3) to a portion of a channel bandwidth that is a function of the number of such receiver filters (Section 0030 and 0047).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate setting a bandwidth for the filters as taught by Haub et al. into Dockemeyer, Jr. et al. calibrating gain receiver in order to reduce interference (Section 0002 and 0003).

Regarding claim 24, Dockemeyer, Jr. et al. radio receiver with optimized multiple variable gain circuits teaches means for detecting interference 52 and 50 or 70 (Fig. 2); and means for adjusting 54 and 30 (Fig. 2) receiver gain 40 or 60 (Fig. 2) based on narrowband sampling 50 or 70 (Fig. 2) of a noise floor (interference) within a bandwidth of a configured channel. Dockemeyer et al. fails to teach setting a bandwidth for multiple filters to a portion of a channel.

Haub et al. teaches setting a bandwidth for multiple filters 320 and 323 (Fig. 3) to a portion of a channel (Section 0030 and 0047).

3. Claims 4, 5, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dockemeyer, Jr. et al. (US Pat Appl# 2004/0214540) and Haub et al. (US Pat Appl# 2005/0026564) and in further view of Vepsalainen et al (US Pat Appl# 2004/0176055).

Regarding claim 4, Dockemeyer, Jr. et al. in view of Haub et al. teaches the limitations in claim 1. Both Haub et al. and Dockemeyer, Jr. et al. fails to teach about settling time for the samples.

Vepsalainen et al. method for compensating DC level in an adaptive radio receiver teaches waiting at each sample for the received power to settle 50 (Fig. 5).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate settling time for the samples as taught by Vepsalainen et al. into setting receiver filters to a narrow bandwidth as taught by Haub et al. into Dockemeyer, Jr. et al. calibrating gain receiver in order to improve DC offset (Section 0002 and 0003).

Regarding claim 5, Vepsalainen et al. teaches wherein the wait is approximately three seconds or any amount of time 50 (Fig. 5).

Regarding claim 18, Vepsalainen et al. teaches wherein three received filters 20 and 22 (Fig. 2B) are used, and each could cover approximately 1/3rd of the bandwidth of the channel.

4. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dockemeyer, Jr. et al. (US Pat Appl# 2004/0214540) in view of Haub et al. (US Pat Appl# 2005/0026564) and in further view of Usui et al. (US Pat# 5,818,827).

Regarding claim 7, Dockemeyer, Jr. et al. in view of Haub et al. teaches the limitations in claim 6. Dockemeyer, Jr. et al. and Haub et al. fail to teach about a CDMA channel being 1.23 wide.

Usui et al. radio communication device teaches wherein the CDMA channel is approximately 1.23 MHz wide (Col. 6 lines 55-58), and it is known and obvious that the narrow bandwidth is approximately 100 KHz ("Narrowband" TRA, see attachment).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a CDMA channel being 1.23 wide as taught by Usui et al. into setting receiver filters to a narrow bandwidth as taught by Haub et al. into Dockemeyer, Jr. et al. calibrating gain receiver in order to allow a frequency band to be effectively utilized (Col. 1 lines 65-67).

Regarding claim 19, the combination including Usui et al. teaches wherein the CDMA channel is approximately 1.23 MHz wide (Col. 6 lines 55-58), and it is known and obvious that the narrow bandwidth is approximately 100 KHz ("Narrowband" TRA, see attachment).

5. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haub et al. (US Pat Appl# 2005/0026564).

Regarding claim 9, Haub et al. current reduction by dynamic receiver adjustment in a communication device teaches a receiver 302 (Fig. 3); an adjustable receiver filter 320 or 323 (Fig. 3); a power detector 308 (Fig. 3); and a micro-controller 308 (Fig. 3) across a receive band and adjusts a gain of the receiver as a function of power detected (Section 0035 and 0036). Haub et al. fails to teach clearly about a micro-controller that adjusts the receiver filter to sample a narrow bandwidth.

However, it would have been obvious that the micro-controller 308 (Fig. 3) adjusts the receiver filter to sample a narrow bandwidth because there is implied of some sort of narrowband filtering is done because the receiver handles both wideband and narrowband communications and the filters can be adjusted (Section 0030 and 0047).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a micro-controller that adjusts the receiver filter to sample a narrow bandwidth into Haub et al. receiver in order to reduce interference signals and power consumption (Section 0002 and 0003).

Regarding claim 10, Haub et al. teaches wherein the gain is adjusted based on minimum power detected over the samples (Section 0016).

Regarding claim 11, it is obvious and known that in a CDMA radio that wherein the narrow bandwidth is approximately 100 KHz (See claim 2).

Regarding claim 12, teaches wherein the receiver is a receiver for a CDMA channel (Section 0002 and 0030).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haub et al. (US Pat Appl# 2005/0026564) in view of Lindell et al. (US Pat# 6,978,125).

Regarding claim 14, Haub et al. current reduction by dynamic receiver adjustment in a communication device teaches the limitations in claim 9. Haub et al. fails to teach a low noise amplifier and an adjustable attenuator.

Lindell et al. apparatus for tuning pre-selection filters in radio receivers teaches a low noise amplifier 1805 (Fig. 18) and an adjustable attenuator 1837 (Fig. 18).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to a low noise amplifier and an adjustable attenuator as taught by Lindell et al. into Haub et al. adjustable receiver in order to improve noise performance (Col. 3 line 43-Col. 4 line 3).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haub et al. (US Pat Appl# 2005/0026564) in view of Lindell et al. (US Pat# 6,978,125) as applied to claims 9 and 14 above, and further in view of Cho (US Pat Appl# 2003/0073423).

Regarding claim 15, Haub et al. in view of Lindell et al. teaches the limitations in claims 9 and 14. Both Lindell et al. and Haub et al. fail to teach means for selectively bypassing or enabling the low noise amplifier.

Cho receiver of mobile communication teaches means for selectively 300 (Fig. 3) bypassing or enabling the low noise amplifier 103 (Fig. 3).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to selectively bypassing or enabling the low noise amplifier as taught by Cho into a low noise amplifier and an adjustable attenuator as taught by Lindell et al. into Haub et al. adjustable receiver in order to increase linearity (Section 0008).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haub et al. (US Pat Appl# 2005/0026564) in view of Seo (US Pat# 6,738,367).

Regarding claim 16, Haub et al. current reduction by dynamic receiver adjustment in a communication device teaches the limitations in claim 9. Haub et al. fails to teach a pair of antennas coupled to a duplexer.

Seo's apparatus for receiving signals for cellular radio telecommunication system teaches a duplexer 210 (Fig. 2) coupled to a pair of antennas 202 and 204 (Fig. 2) for implementing receive diversity.

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to a pair of antennas coupled to a duplexer as taught by Seo into Haub et al. adjustable receiver in order to handle more frequency channels (Col. 2 lines 21-25).

Response to Arguments

Applicant's Remarks	Examiner's Response
"There is no concept of sampling across all of the receive band with narrow bandwidth filters as claimed."	In Section 0023 of Dockemeyer, it teaches reading the narrow band signal for both the primary and secondary signals. Reading is the same as sampling since it is analyzing a signal. In section 0014, Dockemeyer teaches the signals being RF signals with a frequency bandwidth (channel).
"Element 108 appears to "read signal quality" at one frequency, not at each sample corresponding to samples across substantially all of the receive band as claimed."	See the above comments.
"Paragraph 0030 of Haub et al., describes a receiver circuit 302 that communications on different frequency bands through a	Haub et al. was used to teach setting receiver filters to a narrow bandwidth. Dockemeyer reference teaches sampling

duplex filter 104, thus teaching away from sampling one band with multiple receivers as claimed."	one band with multiple receivers.
Regarding claim 2, "Further, there is no suggestion for combining this newly cited reference with the other references."	The claim states "**approximately** 100 KHz," approximately is a broad term and what the examiner cited can read on approximately.
Regarding claim 3, "These sections or paragraphs have been reviewed as indicated above, and appear to have nothing to do with sampling, much less suggesting the number of samples across a received band."	In section 0047 of Haub, it states the filters has dynamic range and therefore Haub can read on claim 3.
Regarding claim 17, "Applicant fails to see how this teaches the claimed method of merging receiver filters to cover the bandwidth of a channel."	In section 0023, Dockemeyer teaches reading (sampling) narrowband and wideband signals. These signals are RF signals with a frequency bandwidth (channel, section 0014). So, the filters cover the bandwidth of a channel. Haub is also used to teach setting a bandwidth for multiple receiver filters (Fig. 3 and Sections 0030 and 0047).

Regarding claim 17, "This statement does not appear to relate to increasing receiver attenuation as claimed."	In section 0015 and 0016 of Dockemeyer, it teaches the gain circuit 40 and 60 has positive gain.
Regarding claim 23, "This language does not teach or suggest the claimed function of merging receiver filters to cover the bandwidth of a channel."	In section 0023, Dockemeyer teaches reading (sampling) narrowband and wideband signals. These signals are RF signals with a frequency bandwidth (channel, section 0014). So, the filters cover the bandwidth of a channel. Haub is also used to teach setting a bandwidth for multiple receiver filters (Fig. 3 and Sections 0030 and 0047).
Regarding claim 23, "As previously indicated, paragraphs 0030 and 0047 provide no such teaching."	In section 0047 of Haub, it states the filters has dynamic range.
Regarding claim 24, "There is no discussion of the use of multiple filters set to cover a channel, as correspond to the claimed means."	In section 0023, Dockemeyer teaches reading (sampling) narrowband and wideband signals. These signals are RF signals with a frequency bandwidth (channel, section 0014). So, the filters cover the bandwidth of a channel. Haub is also used to teach setting a bandwidth for

	multiple receiver filters (Fig. 3 and Sections 0030 and 0047).
Claim 24, "While Dockemeyer, Jr. et al., describes narrow band power detectors 50 and 70, there is no discussion of sweeping across a receiving band."	In section 0023, Dockemeyer teaches reading (sweeping) narrowband and wideband signals. These signals are RF signals with a frequency bandwidth (channel; section 0014). So, the filters cover the bandwidth of a channel.
Regarding claim 9, "Thus, rejection fails to address a portion of the claim, that of sampling a narrow bandwidth across a receive band."	Haub teaches in sections 0035 and 0036 that it samples narrow bandwidth with dynamic range.
Regarding claim 9, "These sections have been discussed above, and no such teaching was found. Further, Haub et al., does not describe sampling across a receive band as claimed."	Haub teaches in sections 0035 and 0036 that it samples narrow bandwidth with dynamic range.
Regarding claim 9, "The allegedly inherent characteristic does not necessarily flow from the teachings of Haub et al."	Examiner does not state it would be inherent, but stated that it would be obvious.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Wendell whose telephone number is 571-272-0557. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrew Wendell
Examiner
Art Unit 2618

1/9/2007

NAY MAUNG
SUPERVISORY PATENT EXAMINER